



# **CABLE TEST BRIDGE KMK 7**

**Copper Cable  
Test Equipment**

**sebaKMT**



# KMK 7

## Application

The KMK 7 is a computerized automatically balanced fault location bridge with integrated acceptance and series tests. The splash-proof design makes the instrument especially suitable for rough field use. The excellent sensitivity makes it an ideal test set for measurements on trunk and local cables. For acceptance tests, using the KMK 7, the insulation resistance, loop resistance, resistance difference, mutual capacitance and interference voltages can be measured. The unit is specially designed for easy fault location and acceptance tests.

Measurement of insulation resistance, loop resistance and DC-fault location can be called up via special keys. All other measurements are activated via main- and submenus. In addition to the automatic balancing facility, the KMK 7 can also be balanced manually. The DC-fault location can be carried out with the Murray Loop B, the Double Bridge Loop and the Three Point Method. For measurements according to the "Double Bridge Loop" the switching at the cable end (open and short circuit) can be carried out automatically with the remote switch FGK 1.

All DC-fault location measurements are indicated as a resistance measurement, a length measurement or as a percentage of the cable length. For cables with sections of different conductor diameters, the cable section and the conductor diameter have to be entered. The KMK 7 automatically indicates the section number and the distance to the fault from the near end.

The cable test set KMK 7 is suitable for AC- and DC-fault location on loaded and unloaded cables.



## Main Menu

All feasible measurements and possibilities are listed in the "Main menu". The individual measurements are selected by operating the corresponding key.

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Tu, 20.12.00 12:59

--- Main - Menu ---

Wire Identific. -0- Res. Difference -5-
Interfer. Volt. -1- Capacitance -6-
Insulation Res. -2- Open Circuit -7-
Loop Resistance -3- Res. Discontin. -8-
DC - Fault Loc. -4- Special Modes -9-

directly: Riso, Rs, lx < contrast >

```

## Measurement display

Standard cable length of 10,000 m

- lx distance to the fault position
- ly distance from fault position to the cable end
- Mw average value

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We, 21.12.00 12:16
* DC-Faultlocation *
↓
┌──────────────────┐ busy ...
└──────────────────┘ ly : 8591.6 m
-3- ...print
-5- ...stop
Mw : 1410.00
faulty wire: Xb
Length : 10000.0 m lx : 1408.4
┌──────────────────┐

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## Data of the KMK 7

### Features

- Microprocessor-controlled measurement with automatic balancing facility
- Indication of the test circuit, test procedure and test results on the graphic LCD-display
- Easy menu-driven operation
- Input of the cable temperature or temperature measurement via test sonde
- Storage of test results
- RS 232 serial link
- Power supply by NC-accumulator, external 12 V DC or mains supply
- Splash-proof with cover open, waterproof with cover closed
- Fault location measurements as per:
  - Murray Loop B
  - Double bridge method
  - Three point method for high- and low ohmic shunts
  - Resistance discontinuities
  - Breaks
  - Loaded und unloaded cables
- Maintenance and series tests
  - insulation resistance
  - conductor/pair identification
  - loop resistance
  - resistance difference
  - mutual capacitance
  - interference voltage

### Technical Data:

#### DC Fault Location:

Measuring modes for shorts and shunts:	Murray Loop B Double Bridge Three Point
Measuring range:	loop resistance up to 14 k $\Omega$ fault resistance up to 100 M $\Omega$
Test voltage:	a) 100 V DC; ( $R_i = 60$ k $\Omega$ ) b) 500 V DC; ( $R_i = 300$ k $\Omega$ )
Sensitivity:	0.25 $\mu$ V/Bit
Resolution:	10 <sup>-5</sup> of twice the cable length
Accuracy:	0.1 % $\pm$ 1 Digit (of cable length)

#### AC Fault Location:

Measuring range:	200 m up to 100 km $R_{min} \geq 100$ k $\Omega$
Test voltage:	a) 200 m up to 10 km $U_{eff} = 16$ V <sub>ss</sub> ; $f = 77$ Hz; $R_i = 100$ k $\Omega$ b) 2 km up to 100 km and loaded cables: $U_{eff} = 50$ V <sub>ss</sub> ; $f = 4.5$ Hz; $R_i = 400$ k $\Omega$
Sensitivity:	50 $\mu$ V/Bit
Resolution:	a) $f = 4.5$ Hz: 0.05 ‰ of cable length b) $f = 77$ Hz: 0.2 ‰ of cable length
Accuracy:	0.5–1 % $\pm$ 1 Digit (of cable length)

#### DC Interference Voltage:

Measuring range:	up to 100 V ( $R_e > 10$ M $\Omega$ )
Accuracy:	2.5 % $\pm$ 1 Digit (of measuring range)

#### AC Interference Voltage:

Measuring range:	up to 60 V <sub>ss</sub> ( $R_e > 10$ M $\Omega$ )
Accuracy:	5 % $\pm$ 1 Digit (of measuring range)



# CABLE TEST BRIDGE KMK 7



## Technical Data:

### Resistance:

Measuring range: up to 14 k $\Omega$  (loop resistance)  
 Test voltage: 100 V DC; R<sub>i</sub> = 60 k $\Omega$   
 Measuring mode: bridge measurement (auto)  
 Sensitivity: 0.25  $\mu$ V/Bit  
 Resolution:  $\frac{R_s}{10^2}$   
 Accuracy: 0.1 %  $\pm$ 1 Digit  
 (of measuring range)

### Resistance difference (WU):

Measuring range: a) up to 10 % of R<sub>s</sub>  
 b) up to 50 % of R<sub>s</sub>  
 Test voltage: 100 V DC; R<sub>i</sub> = 60 k $\Omega$   
 Measuring mode: bridge measurement (auto)  
 Sensitivity: 0.25  $\mu$ V/Bit  
 Resolution:  $\frac{R_s}{10^2}$   
 Accuracy: 0.02 %  $\pm$ 1 Digit (of R<sub>s</sub>)

### Insulation Resistance:

Measuring modes: a) Test mode  
 b) Limit indication 3/30 G $\Omega$   
 c) Bridge meas. up to 100 G $\Omega$   
 Test voltage: a) 100 V DC; R<sub>i</sub> = 60 k $\Omega$   
 b) 500 V DC; R<sub>i</sub> = 300 k $\Omega$   
 Accuracy: 5–15 %  $\pm$ 1 Digit (of measur. range)

### Resistance discontinuity:

Measuring range: above 5  $\Omega$  (>10 % of R<sub>s</sub>)  
 Measurements: AC- and DC-fault location  
 in combination  
 Accuracy: 2 %  $\pm$ 1 Digit (of meas. range)  
 (R<sub>s</sub> > 100  $\Omega$ )

### Accessoires:

Standard: Test leads and clips  
 Optional: Printer, temperature sensor  
 remote switch FGK 1

## Technical Data:

### Mutual Capacitance:

Measuring range: a) 2 nF up to 2  $\mu$ F (f = 77 Hz)  
 b) 200 nF up to 15  $\mu$ F (f = 4.5 Hz)  
 Test voltage: a) f = 77 Hz; 16 V<sub>ss</sub>; R<sub>i</sub> = 100 k $\Omega$   
 b) f = 4.5 Hz; 50 V<sub>ss</sub>; R<sub>i</sub> = 300 k $\Omega$   
 Resolution: a) 0.1 nF (meas.  $\leq$  500 nF)  
 f = 77 Hz  
 b) 0.5 nF (meas.  $\leq$  5  $\mu$ F)  
 f = 4.5 Hz  
 Accuracy: 0.5–3 %  $\pm$ 1 Digit  
 of measuring range

### General Data:

Permissible ambient temperature:  
 Nominal operating temp.: -10  $^{\circ}$ C...+50  $^{\circ}$ C  
 Operating temp. limits: -15  $^{\circ}$ C...+55  $^{\circ}$ C  
 Transport and storage temp.: -25  $^{\circ}$ C...+60  $^{\circ}$ C  
 Power Supply: a) 210 V... 250 V AC;  
 50–60 Hz; 115 V opt.  
 b) Internal NC-accu;  
 6–8 h cont. operation;  
 charging time 5 hours  
 c) External DC source;  
 12 V DC (9–15 V); P > 10 VA  
 Weight: 6.3 kg  
 Dimensions: 340 x 180 x 270 mm  
 Housing: yellow plastic case with handle  
 Vibration and drop test: VDE 0411

DIN ISO 9001

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Technical data subject to change without notice.

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